



Why The Water Cycle Needs To Be Taught Hands On.

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Introduction

The purpose of this project is to find other activities to add or replace parts of the Land and Water unit that is taught in fourth grade curriculum.

Where is Denmark?



A stylized illustration of a bright yellow sun with a blue circle in the center, partially obscured by white and light blue clouds. The background is a solid blue color with a subtle pattern of lighter blue squares.

Who Makes Up Denmark?

According to the Wisconsin Department of Public Instruction Website, Denmark Elementary School has about 500 students.

Of those 500 students, about 13% of them have special needs. The elementary school is grades 1-5, with roughly 100 kids per grade. Each grade has either 4 or 5 sections. The grade this research affected was fourth. There are four sections with 102 kids. Only one class received the extra activities

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Denmark Nature Center



Research question

- Do additional hands on activities about the water cycle improve the students' abilities to understand the imperative relationship between land and water?



Research Process

With one fourth grade class I added the additional activities while the other class was taught the original curriculum. All the students will take the pre and post assessment.



Pre Assessment Question 1

What is a watershed?

- Class One – Gets curriculum and extra activities
- A place to store water
- I don't know
- A lot of water
- A greenhouse
- Those big towers that say Denmark on the side
- Class Two- Gets regular curriculum
- Something that holds water
- A shed that keeps water
- No clue
- ?
- Many left blank



Pre Assessment Question 2

Where does our water come from?

- Class One
 - Wells
 - From the oceans through pipes
 - Lakes
 - The ground
 - Sky/ Rain
- Class Two
 - Oceans
 - Lakes
 - Air mist
 - Rivers
 - Rain
 - Rain Cycle
 - The Sink



Pre Assessment Question 3

Where does our water go?

- Class One
 - Under ground
 - Our sinks
 - In pipes
 - Sewers
 - It is evaporated
- Class Two
 - The ocean or ground
 - Sewers
 - It evaporates
 - To a lake
 - To water rides



What Did We Do?

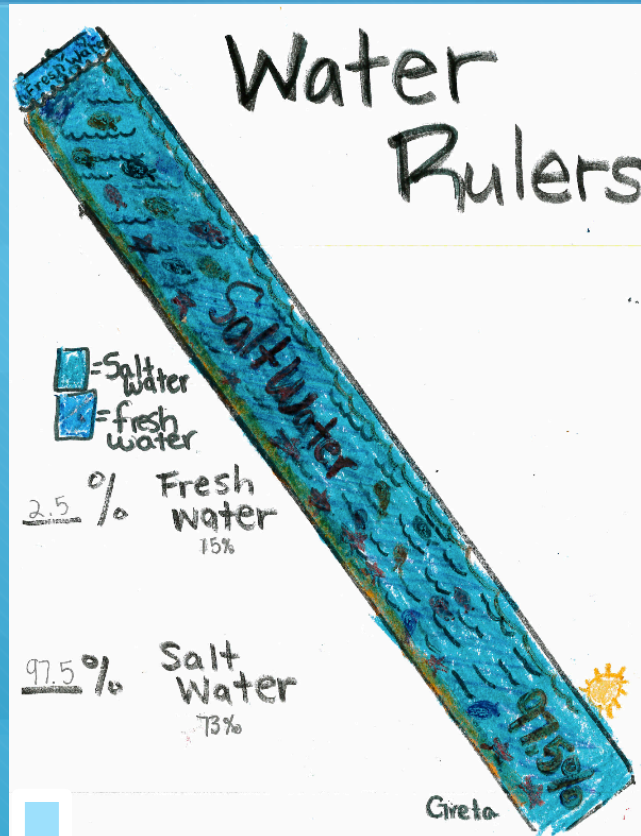
Indoor Activities

- Water Rulers
- Discussed and located watersheds
- Water Cycle Game
- Put together presentation of outdoor water cycle
- Discussed how to help preserve our water
- Water table presentation through UW- Extension

Outdoor Activities

- Went into nature center to observe water cycle
- Took pictures of all the parts of the water cycle in nature
- Went outside and picked up pollution that could have entered our watershed
- Located where runoff/ storm water goes from school

Examples of Water Rulers





Findings...

- The students had NO CLUE how little water is available to us
- Students knew very few ways that they could help preserve water
- Many students were amazed that humans cannot drink saltwater

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Examples of Water Cycle Game and Sop, the Drop



Findings...

- Students were finally able to see why it is called a cycle because they physically walked from the cloud center to the stream center to the cloud center to the field center and so on
- Students realized that sometimes water is evaporated before it hits the ground, animal, or surface
- By writing the story of a water drop, students had to think step by step. They also had to think in a new way to describe that experience of moving through the water cycle.

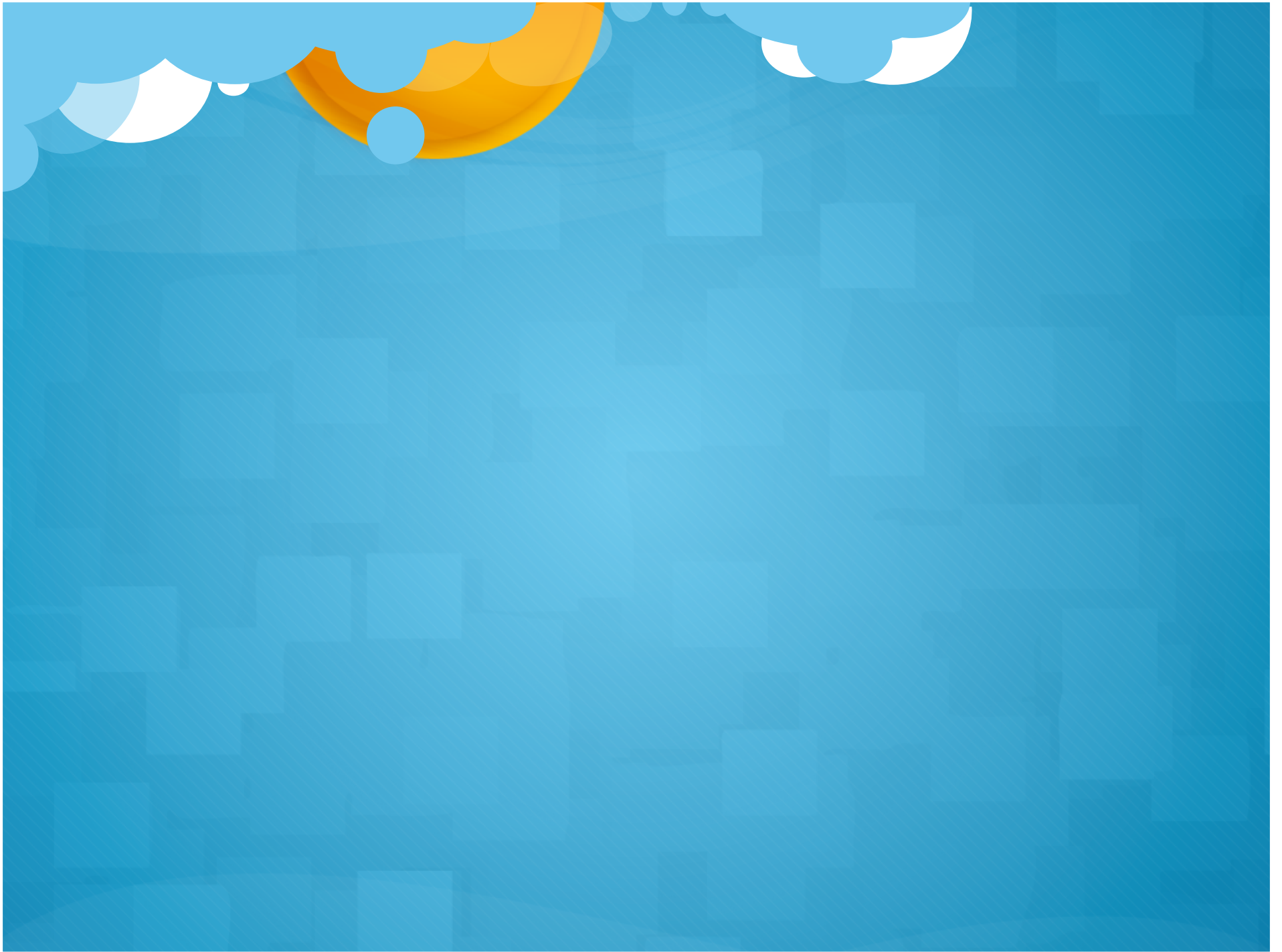


Water Cycle Exploration Project

- Students were given twenty minutes to go out into the Nature Center to find evidence of the water cycle (this was after a heavy rain)
- They needed to take pictures of the evidence and be able to explain what part of the cycle was in the picture
- The following day, the students were able to get pictures of precipitation as well
- After the pictures were printed, the class discussed ways to represent the water cycle. They decided on making posters of each part and then put them in a cyclical position.

Pictures of Nature Center Exploration







Findings...

- Students were extremely motivated to use Ipods and to go outside
- They enjoyed exploring nature- especially water
- They asked many questions in order to deepen their understanding of the water cycle
- They ask daily if we get to go outside again
- The other classes ask if they can go outside too

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Students Making Posters



Post Assessment Question 1

Water Can Be Created.

○ Class One

○ 21 No

○ 2 Yes

○ Class Two

○ 18 No

○ 5 Yes



Question 2

What is a watershed?

○ Class One

○ Any area of land that water flows

○ Where land and water meet

○ Where water is reused

○ Where water flows and meets up with a body of water

○ Class Two

○ Where water goes

○ A stream or river

○ Land that water flows over

○ Goes through land

○ A pond



Question 3

Do you believe it is necessary to think about water?

○ Class One

○ 22 Yes

○ 1 No

○ Class Two

○ 20 Yes

○ 3 No



Question 4

Do Humans Affect Water?

o Class One

o 23 Yes

o 0 No

o Class Two

o 21 Yes

o 2 No



Question 5

Where does our water come from?

- Class One
- Lake Michigan
- Wells
- Bodies of freshwater
- Lake Superior
- Class Two
- Rivers
- Wells
- Lakes
- The Branch River



Question 6

I Can Affect Water.

○ Class One

○ 23 Yes

○ 0 No

○ Class Two

○ 22 Yes

○ 1 No



Question 7

How can YOU save water? Make a list.

○ Class One

- Take shorter showers
- Turn off water when brushing teeth
- Do not blow grass on the road
- Do larger loads of laundry
- Catch water to water flowers

○ Class Two

- Stop wasting water
- Don't litter
- Take a shower, not a bath
- Wash dishes by hand
- When you take a bottle of water, drink it all
- Drink less water



Question 8

Did you enjoy learning about the water cycle using the Nature Center? Why or Why Not?

- 23 Yes and 0 No
- It shows us what we are learning- not just tells
- We saw the actual stuff- like water on the ground
- It gave me good examples and saw it in real life
- I like hands on activities
- It was a fun way to learn how the water cycle works
- We got fresh air and its smells clean most of the time



Question 9

Did you learn better or worse when you were outside? Why?

- 22 Better 1 Worse
- I get distracted outside
- I can concentrate better with fresh air and the birds' songs are calming
- I could see real life examples instead of imagine it
- I learn better when things are taught hands on
- I can see everything happening- including the water cycle
- I was able to see all the ways water is needed in the environment



Implications



Problems Faced

- ◊ When adding to curriculum, TIME is always an issue
- ◊ I still am figuring what I will take out or condense the next time I teach this unit
- ◊ Having to depend on the weather could complicate some of the lesson, this year it worked out for me



How Does This Affect My Teaching?

- Next year, I will definitely add these activities to my current Land and Water science curriculum
- I will put together a binder with these activities to give to Jordan Phillippo, the other fourth grade science teacher
- All fourth graders will now be exposed to these additional hands on activities- they were not only motivational, but truly deepened the understanding



In Conclusion

- The additional hands on activities did in fact help the fourth graders to learn the imperative relationship between land and water.
- From this project, I am now wondering how the integration of technology would further impact student achievement and motivation
- I am also looking for other ways to integrate the Denmark Nature Center into other units – not just science



Questions